

Services, Wärtsilä Netherlands B.V.

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99 Service information	D234	WNL Services	31.10.2012	04	SN234/99/7001	1(1) + encl.

## Maintenance schedules / maintenance parts

**Engine types** D234

**Engine manual ref.** Chapter 'Maintenance schedules'

**Issue 04** Maintenance schedule updated, irregularities corrected.

**General** For operational business activities, in the form of offers, we must act in a fast and efficient way.

For this purpose lists with spare parts numbers and corresponding ETL - pages have been added to the enclosed maintenance schedules.

This information is indicative!



If an order is assigned, it is absolutely necessary to check if the indicative parts can be used for the specific engine configuration, by using 'Depic' tool based on the correct engine serial number.

**Ordering parts** Contact your closest Wärtsilä Services Unit. When ordering parts please specify the engine serial number and the material numbers.

**Letter distribution** The Wärtsilä Services Network.

**Feedback** E-mail to: [service.sales.nl@wartsila.com](mailto:service.sales.nl@wartsila.com)

**Letter validity** Until further notice.  
Herewith Spare Parts Notice 'SN234/99/7001'- issue 03 has been cancelled.

**Enclosure** Maintenance schedules / maintenance parts.

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## **Maintenance schedules / maintenance parts**

### **Wärtsilä Deutz TBD234**

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## 1. Relation between application and maintenance groups

Maintenance group		# Cylinders			V6		V8		V12		V16	
			Engine type	Turbocharger	Charge air cooler	D234	TBD234	D234	TBD234	D234	TBD234	TBD234
						without	with	without	with	without	with	with
						without	with	without	with	without	with	with
Power at:	Rating:											
A / G	Continuous operation	Workboats e.g. fishing vessels, harbour vessels	1500 rpm	ICFN	kW	104	191	140	255	208	383	510
A / G			1800 rpm	ICFN	kW	123	227	164	303	246	455	606
A / G			2100 rpm	ICFN	kW	137	250	183	333	274	500	666
B	Restricted time operation	Fast ships e.g. catamarans	2200 rpm	ICXN	kW	144	313	192	418	289	626	780
B			2265 rpm	IOFN	kW	159	344	211	460	318	688	860
C		Yachts or e.g. patrol boats	2200 rpm	IC15N	kW	144	313	192	418	289	626	780
C			2265 rpm	ION	kW	159	344	211	460	318	688	860
C			2300 rpm	IOFN	kW	166	360	221	480	332	720	900
C		Private yachts or fast patrol boats (234 Y - version)	2165 rpm	IC20N	kW	-	337	-	450	-	675	858
C			2235 rpm	ION	kW	-	371	-	495	-	743	944
C			2300 rpm	IOFN	kW	-	405	-	540	-	810	1030

**Maintenance group A:** \* All generator sets except emergency / standby sets

\* Propulsion engines with power output blocked at 100% (MCFN, SCFN, ICFN)

**Maintenance group B:** \* Propulsion engines blocked at 110% load (MCXN / ICXN / SCXN, MXN, IXN, MOFN, IOFN, SFN, IFN)

**Maintenance group C:** \* Propulsion engines blocked at 115% load (MC15N, IC15N, ION)

\* Propulsion engines blocked at 120% load (MC20N, IC20N, ION)

**Maintenance group G:** \* Emergency or stand-by operation (generator sets or propulsion engines)

\* ISO 3046/1 Air temperature = 27 °C, outside air pressure = 1000 mbar, relative air humidity = 60%, raw cooling water temperature inlet = 27 °C

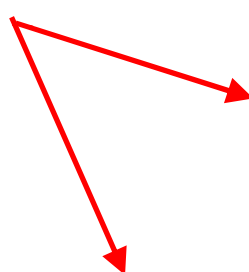
## 2. Explanation

Wärtsilä Maintenance & service schedules		Max. maintenance intervals				Executed by
		Group A	Group B	Group C	Group G	
<b>E10</b>	After commissioning and	-	-	-	-	Technicians
<b>E20</b>	Daily check.	-	-	-	-	
<b>E23</b>	Periodic maintenance (small scope).	-	-	-	-	
<b>E25</b>	Periodic maintenance (small scope).	500	500	500	1 month	
<b>E30</b>	Periodic maintenance (small scope).	1,000	1,000	1,000	1 year	
<b>E40</b>	Periodic maintenance	2,000	2,000	2,000	2 years	Authorized specialists
<b>E50</b>	Periodic maintenance	6,000	2,000	2,000	2 years	
<b>E60</b>	Intermediate overhaul.	12,000	6,000	3,000	6 years	
<b>E70</b>	Major overhaul.	24,000	18,000	9,000	18 years	

Definition of activities in the maintenance schedule	
<b>Adjust</b>	Adjust
<b>Drain water</b>	Drain condensed water for example.
<b>Renew</b>	Renew parts, assembly groups and liquids.
<b>Recondition</b>	Machine
<b>Check</b>	Check acc. the criteria
<b>Clean</b>	Cleaning by
<b>Visual Inspection</b>	Visual
<b>Overhaul</b>	Check assembly groups, rework or renew parts.
<b>Maintain</b>	Maintain according to
<b>Change</b>	Change lubricating oil for example.

The power rating can be found at the test bed protocol or at the rating shield of the engine:

Examples



DEUTZ MWM TEST CERTIF	
MOTOREN-WERKE MANNH	
engine-type:	TBD 234 V 12
output:	MC15N 605 kW
speed:	2200 1/min
-Ref	output
speed	brake output



TYPE TBD 234 V 08	
No. 234.08.02683	
ICXN	358 kW 1800 1/min
SCXN	335 kW 1800 1/min
SQFN	368.5 kW 1785 1/min
100	1000 mbar 45 60

Cleaning should be done more frequently if increased contamination prevails.

Checking means: Visual inspection or dimensional check, adjustment, reconditioning or replacement may be necessary.

**Note:** In special (heavier) situations of engine application the maintenance intervals have to be shortened!

**3. E20 - E10**

No	E20 - Daily	Construction group	Periodic maintenance jobs	Action	Operation Manual English 02975853 Job card	Operation Manual German 0299 7190 Job card
1	x	22	Charge air pipes	Drain	B 6-2-1	B 6-2-2
2	x	99	Quantity of fuel, cooling water, lubricating oil	Check		B 0-1-1
3	x	99	Operating temperatures and pressures etcetera	Check		-
4	x	32	Starting air pressure cylinder	Drain		B 10-7-1
5	x	22	Difference pressure indicator dry air filter	Check		B 6-3-3
6	x	22	Difference pressure indicator plate air filter	Check		B 6-3-12

Always check manual for special jobs and procedures

No	E10 - 50 hrs	Construction group	Periodic maintenance jobs	Action	Operation Manual English 02975853 Job card	Operation Manual German 0299 7190 Job card
1	x	11	Valve clearance	Check	3.2.028	B 1-1-1
2	x	15	Lubricating oil filling	Renew	3.2.001	B 8-1-2
3	x	15	Lubricating oil filter cartridges	Renew	3.2.025	B 8-10-4
4	x	37	Raw water pump	Lubricate	3.2.003	
5	x	44	V-belt	Check	3.2.003	B 12-2-1

Always check manual for special jobs and procedures

**4. Maintenance group A**

No	Construction group						Periodic maintenance jobs	Action	Operation Manual English 02975853 Job card	Operation Manual German 0299 7190 Job card
	E25 - 500 hrs	E30 - 1,000 hrs	E40 - 2,000 hrs	E50 - 6,000 hrs	E60 - 12,000 hrs	E70 - 24,000 hrs				
1	x	x	x	x	x	x	15 Lubricating oil filling <sup>1</sup>	Renew	3.2.001	B 8-1-2
2	x	x	x	x	x	x	15 Lubricating oil filter cartridges	Renew	3.2.025	B 8-10-4
3	x	x	x	x	x	x	22 Air filter <sup>2</sup>	Clean	3.2.002	B 6-3-2
4	x	x	x	x	x	x	37 Raw water pump	Lubricate	3.2.003	
5	x	x	x	x	x	x	37 Zinc protective elements	Check	3.2.005	
6	x	x	x	x	x	x	44 V-belt	Check	3.2.003	B 12-2-1
7		x	x	x	x	x	01 Crankcase breather	Check	-	B 3-1-1
8		x	x	x	x	x	11 Valve clearance	Check	3.2.028	B 1-1-1
9		x	x	x	x	x	38 Anti-freeze / anti-corrosion liquid in cooling water	Check	-	
10			x	x	x	x	20 Fuel filter elements	Renew	3.2.053	B 7-10-1/2/3/4
11			x	x	x	x	44 Bearings of dynamo	Lubricate	3.2.060	B 13-2-2
12			x	x	x	x	48 Monitoring and engine stopping device	Check	3.2.055	B 11-0-1/1-1/2-4
13			x	x	x	x	58 Charge air cooler	Clean	3.2.057	B 6-4-3
14				x	x	x	08 Compression pressure	Check	4.6.004	
15				x	x	x	19 Injection nozzles	Check	4.5.001	B 7-7-2
16				x	x	x	43 Turbocharger bearing clearance and cleanliness	Check	Page 324	
17					x	x	04 Cylinder liners	Check	-	
18					x	x	08 Cylinder heads	Overhaul	4.5.012/013/014/015/ 016/017	
19					x	x	21 Injection pipes	Renew	-	

No	E25 - 500 hrs	E30 - 1,000 hrs	E40 - 2,000 hrs	E50 - 6,000 hrs	E60 - 12,000 hrs	E70 - 24,000 hrs	Construction group	Periodic maintenance jobs	Action	Operation Manual English 02975853 Job card	Operation Manual German 0299 7190 Job card
20					x	x	41	Exhaust gas pipes (water end) for corrosion	Clean / check	4.4.012F	
21						x	01	Crankshaft seals	Replace	4.3.003	
22						x	05	Connecting rod and main end bearing	Renew	4.5.022	
23						x	05	Crankshaft	Check	4.5.024	
24						x	05	Bearings of mass-balancing device	Renew	4.5.025	
25						x	05	Gear drive	Check	4.5.010	
26						x	07	Pistons	Check	4.5.018	
27						x	10	Camshaft	Check	4.5.028	
28						x	10	Camshaft bearings	Check	4.5.028	
29						x	14	Lubricating oil pump	Replace	4.5.011	
30						x	15	Lubricating oil cooler	Clean	4.4.007	
31						x	17	Injection pump, injection pump drive and coupling	Overhaul	4.5.005 / 4.5.027	
32						x	22	Crankcase breather	Renew	-	
33						x	34	Vibration dampers	Replace	4.5.010	
34						x	37	Cooling water pumps	Replace	4.4.009 / 4.4.011	
35						x	38	Cooling system	Clean	4.4.012 / 4.4.013 / 4.4.038	
36						x	38	Thermostats	Renew	-	
37						x	38	Hose connection	Renew	-	
38						x	43	Turbocharger	Renew	By manufacturer	

**Always check manual for special jobs and procedures**

<sup>1</sup> At turbocharged engines the lubricating oil filling has to be changed every 250 hrs.

<sup>2</sup> Wet air filters have to be cleaned every 100 hrs. For dry air filters, check difference pressure indicator.



**5. Maintenance group B**

No	E25 - 500 hrs	E30 - 1,000 hrs	E40 / E50 - 2,000 hrs	E60 - 6,000 hrs	E70 - 18,000 hrs	Construction group	Periodic maintenance jobs	Action	Operation Manual English 02975853 Job card	Operation Manual German 0299 7190 Job card
1	x	x	x	x	x	15	Lubricating oil filling <sup>1</sup>	Renew	3.2.001	B 8-1-2
2	x	x	x	x	x	15	Lubricating oil filter cartridges	Renew	3.2.025	B 8-10-4
3	x	x	x	x	x	22	Air filter <sup>2</sup>	Clean	3.2.002	B 6-3-2
4	x	x	x	x	x	37	Raw water pump	Lubricate	3.2.003	
5	x	x	x	x	x	37	Zinc protective elements	Check	3.2.005	
6	x	x	x	x	x	44	V-belt	Check	3.2.003	B 12-2-1
7		x	x	x	x	1	Crankcase breather	Check		B 3-1-1
8		x	x	x	x	11	Valve clearance	Check	3.2.028	B 1-1-1
9		x	x	x	x	38	Anti-freeze / anti-corrosion liquid in cooling water	Check	-	
10			x	x	x	08	Compression pressure	Check	4.6.004	
11			x	x	x	19	Injection nozzles	Check	4.5.001	B 7-7-2
12			x	x	x	20	Fuel filter elements	Renew	3.2.053	B 7-10-1/2/3/4
13			x	x	x	44	Bearings of dynamo	Lubricate	3.2.060	B 13-2-2
14			x	x	x	48	Monitoring and engine stopping device	Check	3.2.055	B 11-0-1/1-1/2-4
15			x	x	x	58	Charge air cooler	Clean	3.2.057	B 6-4-3
16				x	x	04	Cylinder liners	Check	-	
17				x	x	08	Cylinder heads	Overhaul	4.5.012/013/014/015/ 016/017	
18				x	x	21	Injection pipes	Renew	-	

No	E25 - 500 hrs	E30 - 1,000 hrs	E40 / E50 - 2,000 hrs	E60 - 6,000 hrs	E70 - 18,000 hrs	Construction group	Periodic maintenance jobs	Action	Operation Manual English 02975853 Job card	Operation Manual German 0299 7190 Job card
19				x	x	41	Exhaust gas pipes (water end) for corrosion	Clean / check	4.4.012F	
20				x	x	43	Turbocharger bearing clearance and cleanliness	Check	Page 324	
21					x	01	Crankshaft seals	Replace	4.3.003	
22					x	05	Bearings of mass-balancing device	Renew	4.5.025	
23					x	05	Connecting rod and main end bearing	Renew	4.5.022	
24					x	05	Crankshaft	Check	4.5.024	
25					x	05	Gear drive	Check	4.5.010	
26					x	07	Pistons	Check	4.5.018	
27					x	10	Camshaft	Check	4.5.028	
28					x	10	Camshaft bearings	Check	4.5.028	
29					x	14	Lubricating oil pump	Replace	4.5.011	
30					x	15	Lubricating oil cooler	Clean	4.4.007	
31					x	17	Injection pump, injection pump drive and coupling	Overhaul	4.5.005 / 4.5.027	
32					x	22	Crankcase breather	Renew	-	
33					x	34	Vibration dampers	Replace	4.5.010	
34					x	37	Water pump	Replace	4.4.009 / 4.4.011	
35					x	38	Cooling system	Clean	4.4.012 / 4.4.013 / 4.4.038	
36					x	38	Hose connection	Renew	-	
37					x	38	Thermostats	Renew	-	
38					x	43	Turbocharger	Renew	By manufacturer	

**Always check manual for special jobs and procedures.**

<sup>1</sup> At turbocharged engines every the lubrication oil filling has to be changed every 250 hrs.

<sup>2</sup> Wet air filters have to be cleaned every 100 hrs. For dry air filters, check difference pressure indicator.

**6. Maintenance group C**

No	E25 - 500 hrs	E30 / E50 - 1,000 hrs	E40 / E50 - 2,000 hrs	E60 - 3,000 hrs	E70 - 9,000 hrs	Construction group	Periodic maintenance jobs	Action	Operation Manual English 02975853 Job card	Operation Manual German 0299 7190 Job card
1	x	x	x	x	x	15	Lubricating oil filling <sup>1</sup>	Renew	3.2.001	B 8-1-2
2	x	x	x	x	x	15	Lubricating oil filter cartridges	Renew	3.2.025	B 8-10-4
3	x	x	x	x	x	22	Air filter <sup>2</sup>	Clean	3.2.002	B 6-3-2
4	x	x	x	x	x	37	Raw water pump	Lubricate	3.2.003	
5	x	x	x	x	x	37	Zinc protective elements	Check	3.2.005	
6	x	x	x	x	x	44	V-belt	Check	3.2.003	B 12-2-1
7		x	x	x	x	1	Crankcase breather	Check		B 3-1-1
8		x	x	x	x	08	Compression pressure	Check	4.6.004	
9		x	x	x	x	19	Injection nozzles	Check	4.5.001	B 7-7-2
10		x	x	x	x	11	Valve clearance	Check	3.2.028	B 1-1-1
11		x	x	x	x	38	Anti-freeze / anti-corrosion liquid in cooling water	Check	-	
12			x	x	x	20	Fuel filter elements	Renew	3.2.053	B 7-10-1/2/3/4
13			x	x	x	44	Bearings of dynamo	Lubricate	3.2.060	B 13-2-2
14			x	x	x	48	Monitoring and engine stopping device	Check	3.2.055	B 11-0-1/1-1/2-4
15			x	x	x	58	Charge air cooler	Clean	3.2.057	B 6-4-3
16				x	x	04	Cylinder liners	Check	-	
17				x	x	08	Cylinder heads	Overhaul	4.5.012/013/014/015/ 016/017	
18				x	x	21	Injection pipes	Renew	-	

No	E25 - 500 hrs	E30 / E50 - 1,000 hrs	E40 / E50 - 2,000 hrs	E60 - 3,000 hrs	E70 - 9,000 hrs	Construction group	Periodic maintenance jobs	Action	Operation Manual English 02975853 Job card	Operation Manual German 0299 7190 Job card
19				x	x	41	Exhaust gas pipes (water end) for corrosion	Clean / check	4.4.012F	
20				x	x	43	Turbocharger bearing clearance and cleanliness	Check	Page 324	
21					x	01	Crankshaft seals	Replace	4.3.003	
22					x	05	Bearings of mass-balancing device	Renew	4.5.025	
23					x	05	Connecting rod and main end bearing	Renew	4.5.022	
24					x	05	Crankshaft	Check	4.5.024	
25					x	05	Gear drive	Check	4.5.010	
26					x	07	Pistons	Check	4.5.018	
27					x	10	Camshaft	Check	4.5.028	
28					x	10	Camshaft bearings	Check	4.5.028	
29					x	14	Lubricating oil pump	Replace	4.5.011	
30					x	15	Lubricating oil cooler	Clean	4.4.007	
31					x	17	Injection pump, injection pump drive and coupling	Overhaul	4.5.005 / 4.5.027	
32					x	22	Crankcase breather	Renew	-	
33					<sup>3</sup>	34	Vibration dampers	Replace	4.5.010	
34					x	37	Water pump	Replace	4.4.009 / 4.4.011	
35					x	38	Cooling system	Clean	4.4.012 / 4.4.013 / 4.4.038	
36					x	38	Hose connection	Renew	-	
37					x	38	Thermostats	Renew	-	
38					x	43	Turbocharger	Renew	By manufacturer	

**Always check manual for special jobs and procedures**

<sup>1</sup> At turbocharged engines, the lubrication oil filling has to be changed every 250 hrs.

<sup>2</sup> Wet air filters have to be cleaned every 100 hrs. For dry air filters, check difference pressure indicator.

<sup>3</sup> Vibration damper to be exchanged at 18,000 hrs.

\* Maintenance has to be executed at hour interval or yearly interval, whatever is reached first.

**7. Maintenance group G**

No	E25 - 1 month	E30 - 1 year	E40 / E50 - 2 years	E60 - 6 years	E70 - 18 years	Construction group	Periodic maintenance jobs	Action	Operation Manual English 02975853 Job card	Operation Manual German 0299 7190 Job card
1	x	x	x	x	x	99	Trail run	-	3.1.4.1	
2		x	x	x	x	1	Crankcase breather	Check		B 3-1-1
3		x	x	x	x	11	Valve clearance	Check	3.2.028	B 1-1-1
4		x	x	x	x	15	Lubricating oil filter cartridges	Renew	3.2.025	B 8-10-4
10		x	x	x	x	15	Lubricating oil filling	Renew	3.2.001	
5		x	x	x	x	22	Air filter <sup>2</sup>	Clean	3.2.002	B 6-3-2
6		x	x	x	x	37	Raw water pump	Lubricate	3.2.003	
7		x	x	x	x	38	Anti-freeze / anti-corrosion liquid in cooling water	Check	-	
8		x	x	x	x	44	V-belt	Check	3.2.003	B 12-2-1
9			x	x	x	08	Compression pressure	Check	4.6.004	
11			x	x	x	19	Injection nozzles	Check	4.5.001	B 7-7-2
12			x	x	x	20	Fuel filter elements	Renew	3.2.053	B 7-10-1/2/3/4
13			x	x	x	37	Zinc protective elements	Check	3.2.005	
14			x	x	x	44	Bearings of dynamo	Lubricate	3.2.060	B 13-2-2
15			x	x	x	48	Monitoring and engine stopping device	Check	3.2.055	B 11-0-1/1-1/2-4
16			x	x	x	58	Charge air cooler	Clean	3.2.057	B 6-4-3
17				x	x	04	Cylinder liners	Check	-	
18				x	x	08	Cylinder heads	Overhaul	4.5.012/013/014/015/ 016/017	
19				x	x	21	Injection pipes	Renew	-	

No	E25 - 1 month	E30 - 1 year	E40 / E50 - 2 years	E60 - 6 years	E70 - 18 years	Construction group	Periodic maintenance jobs	Action	Operation Manual English 02975853 Job card	Operation Manual German 0299 7190 Job card
20				x	x	41	Exhaust gas pipes (water end) for corrosion	Clean / check	4.4.012F	
21				x	x	43	Turbocharger bearing clearance and cleanliness	Check	Page 324	
22					x	01	Crankshaft seals	Replace	4.3.003	
23					x	05	Bearings of mass-balancing device	Renew	4.5.025	
24					x	05	Connecting rod and main end bearing	Renew	4.5.022	
25					x	05	Crankshaft	Check	4.5.024	
26					x	05	Gear drive	Check	4.5.010	
27					x	07	Pistons	Check	4.5.018	
28					x	10	Camshaft	Check	4.5.028	
29					x	10	Camshaft bearings	Check	4.5.028	
30					x	14	Lubricating oil pump	Replace	4.5.011	
31					x	15	Lubricating oil cooler	Clean	4.4.007	
32					x	17	Injection pump, injection pump drive and coupling	Overhaul	4.5.005 / 4.5.027	
33					x	22	Crankcase breather	Renew	-	
34					<sup>3</sup> x	34	Vibration dampers	Replace	4.5.010	
35					x	37	Water pump	Replace	4.4.009 / 4.4.011	
36					x	38	Cooling system	Clean	4.4.012 / 4.4.013 / 4.4.038	
37					x	38	Hose connection	Renew	-	
38					x	38	Thermostats	Renew	-	
39					x	43	Turbocharger	Renew	By manufacturer	

**Always check manual for special jobs and procedures**

<sup>2</sup> Wet air filters have to be cleaned every month. For dry air filters, check difference pressure indicator.

<sup>3</sup> Vibration damper to be exchanged at 18,000 hrs.

\* Maintenance has to be executed at hour interval or yearly interval, whatever is reached first.

## 8. Maintenance parts E25

Construction group	CG	Description	Part no.	ETL (indicative)	Pos (indicative)	V6	V8	V12
Lubricating oil system	15	FILTER CARTRIDGE	DZ12153235	05094214	0002	2	2	2
Lubricating oil system	15	O-RING	DZ12189261	05094214	0003	2	2	2
Intake manifold	22	WET AIR CLEANER	DZ03375061	05038961	0001	1	1	2

## 9. Maintenance parts E30

Construction group	CG	Description	Part no.	ETL (indicative)	Pos (indicative)	V6	V8	V12
Lubricating oil system	15	FILTER CARTRIDGE	DZ12153235	05094214	0002	2	2	2
Lubricating oil system	15	O-RING	DZ12189261	05094214	0003	2	2	2
Intake manifold	22	WET AIR CLEANER	DZ03375061	05038961	0001	1	1	2
Pump assembly	37	NARROW V-BELT	DZ01154353	05094464	0001	1	1	1
Pump assembly	37	SET NARROW V-BELTS	DZ01174834	05094582	0001	0	0	1

## 10. Maintenance parts E40

Construction group	CG	Description	Part no.	ETL (indicative)	Pos (indicative)	V6	V8	V12
Lubricating oil system	15	FILTER CARTRIDGE	DZ12153235	05094214	0002	2	2	2
Lubricating oil system	15	O-RING	DZ12189261	05094214	0003	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118713	05090635	0004	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118688	05091481	0017	1	1	1
Fuel duplex filter	20	SEALING RING	DZ12154530	05090635	0010	2	2	2
Fuel duplex filter	20	FILTER ELEMENT	DZ01175893	05090635	0025	2	2	2
Intake manifold	22	WET AIR CLEANER	DZ03375061	05038961	0001	1	1	2
Heat exchanger	36	GASKET SET	DZ12163071	05094461	0006	0	1	1
Pump assembly	37	NARROW V-BELT	DZ01154353	05094464	0001	1	1	1
Pump assembly	37	NARROW V-BELT	DZ04147300	05094546	0018	0	1	0
Pump assembly	37	SET NARROW V-BELTS	DZ01174834	05094582	0001	0	0	1

ID = Inspection dependable

**11. Maintenance parts E50**

Construction group	CG	Description	Part no.	ETL (indicative)	Pos (indicative)	V6	V8	V12
Lubricating oil system	15	FILTER CARTRIDGE	DZ12153235	05094214	0002	2	2	2
Lubricating oil system	15	O-RING	DZ12189261	05094214	0003	2	2	2
Fuel injector	19	SEALING RING	DZ12163466	05091476	0005	6	8	12
Fuel injector	19	O-SEAL	DZ01212509	05091476	0006	6	8	12
Fuel injector	19	SEALING RING	DZ01118641	05091476	0015	12	16	24
Fuel injector	19	NOZZLE	DZ12152963	05091476	0011	6	8	12
Fuel duplex filter	20	SEALING RING	DZ01118713	05090635	0004	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118688	05091481	0017	1	1	1
Fuel duplex filter	20	SEALING RING	DZ12154530	05090635	0010	2	2	2
Fuel duplex filter	20	FILTER ELEMENT	DZ01175893	05090635	0025	2	2	2
High-pressure pipe	21	O-SEAL	DZ12156263	05091974	0020	6	6	8
High-pressure pipe	21	O-SEAL	DZ01181328	05091974	0030	12	16	24
Intake manifold	22	WET AIR CLEANER	DZ03375061	05038961	0001	1	1	2
Heat exchanger	36	GASKET SET	DZ12163071	05094461	0006	0	1	1
Pump assembly	37	NARROW V-BELT	DZ01154353	05094464	0001	1	1	1
Pump assembly	37	NARROW V-BELT	DZ04147300	05094546	0018	0	1	0
Pump assembly	37	SET NARROW V-BELTS	DZ01174834	05094582	0001	0	0	1
Exhaust manifold	41	ROUND FLANG.GASKET	DZ12161787	05091955	0002	2	2	2
Exhaust manifold	41	SHAPED PACKING	DZ12307263	05095632	0013	0	0	4
Exhaust manifold	41	PACKING COMPOUND	DZ01009887	05094177	0006	1	1	1

ID = Inspection dependable



**12. Maintenance parts E60**

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Cylinder head	08	GASKET	DZ12163455	05090640	0002	6	8	12
Cylinder head	08	CYLINDER HEAD	DZ12190017	N/A	N/A	ID	ID	ID
Cylinder head	08	VALVE SEAT INSERT	DZ12189276	05091565	0007	6	8	12
Cylinder head	08	VALVE SEAT INSERT	DZ12190018	05091565	0008	6	8	12
Cylinder head	08	O-SEAL	DZ01153859	05091565	0010	6	8	12
Cylinder head	08	O-SEAL	DZ01153872	05091565	0011	6	8	12
Cylinder head	08	SEALING RING	DZ12163467	05091565	0024	6	8	12
Cylinder head	08	HEXAGON BOLT	DZ12163212	N/A	N/A	ID	ID	ID
Cylinder head	08	VALVE GUIDE	DZ12163176	05094078	0009	12	16	24
Cylinder head	08	VALVE ROTATOR	DZ12151491	05094078	0018	12	16	24
Cylinder head	08	INLET VALVE	DZ12163267	05094078	0016	6	8	12
Cylinder head	08	EXHAUST VALVE	DZ12163266	05094078	0017	6	8	12
Cylinder head	08	SHAPED PACKING	DZ12275412	05094078	0023	6	8	12
Cylinder head	08	SEALING RING	DZ01118654	05090640	0004	6	8	12
Cylinder head	08	CYLINDER HEAD GASKET SET	DZ12163879	05092287	0001	6	8	12
Cylinder head	08	SLEEVE	DZ12279645	05094545	0002	ID	ID	ID
Cylinder head	08	RING	DZ12163183	05094545	0012	ID	ID	ID
Valve drive	11	PROTECTING TUBE	DZ12163753	05090596	0007	ID	ID	ID
Lubricating oil system	15	O-SEAL	DZ01173375	05091548	0010	2	2	0
Lubricating oil system	15	O-SEAL	DZ01160620	05091546	0007	0	0	2
Lubricating oil system	15	O-SEAL	DZ01153870	05090646	0011	2	2	2
Lubricating oil system	15	FILTER CARTRIDGE	DZ12153235	05094214	0002	2	2	2
Lubricating oil system	15	O-RING	DZ12189261	05094214	0003	2	2	2
Lubricating oil system	15	O-SEAL	DZ01153916	05094214	0004	6	6	6
Lubricating oil system	15	SEALING RING	DZ01118718	05094282	0003	2	2	2
Lubricating oil system	15	SEALING RING	DZ01118791	05094214	0018	1	1	1
Lubricating oil system	15	GASKET	DZ12154662	05094214	0019	1	1	1
Lubricating oil system	15	O-RING	DZ12154852	05094214	0020	1	1	1
Lubricating oil system	15	SPRING	DZ12155169	05094214	0014	1	1	1
Lubricating oil system	15	BALL	DZ01151214	05094214	0015	1	1	1
Lubricating oil line	16	HOSE	DZ12190194	05091977	0005	2	2	2
Lubricating oil line	16	O-SEAL	DZ01160514	05094315	0002	1	2	2
Lubricating oil line	16	O-SEAL	DZ01153921	05094315	0018	1	1	1
Fuel injector	19	NOZZLE HOLDER	DZ12153055	N/A	N/A	ID	ID	ID

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Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Fuel injector	19	SEALING RING	DZ12163466	05091476	0005	6	8	12
Fuel injector	19	O-SEAL	DZ01212509	05091476	0006	6	8	12
Fuel injector	19	SEALING RING	DZ01118641	05091476	15	12	16	24
Fuel injector	19	NOZZLE	DZ12152963	05091476	0011	6	8	12
Fuel duplex filter	20	SEALING RING	DZ01118713	05090635	0004	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118641	05090666	0003	6	8	12
Fuel duplex filter	20	SEALING RING	DZ01118688	05091481	0017	1	1	1
Fuel duplex filter	20	SEALING RING	DZ12154530	05090635	0010	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118659	05090635	0014	2	5	4
Fuel duplex filter	20	O-RING	DZ12156209	05090635	0018	1	1	1
Fuel duplex filter	20	CIRCLIP	DZ01107818	N/A	N/A	1	1	1
Fuel duplex filter	20	O-RING	DZ12156210	05090635	0020	1	1	1
Fuel duplex filter	20	FILTER ELEMENT	DZ01175893	05090635	0025	2	2	2
Fuel duplex filter	20	HEXAGON BOLT	DZ01112538	N/A	N/A	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118647	05090635	0037	2	2	2
Fuel duplex filter	20	SEALING RING	DZ12154675	05090635	0040	1	1	1
Fuel duplex filter	20	SEALING RING	DZ01118718	05094282	0003	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118688	05091481	0017	1	1	4
Fuel duplex filter	20	HOSE ASSEMBLY	DZ15084061	05091697	0019	1	1	1
Fuel duplex filter	20	PIPE/LINE/LEAD	DZ12911618	05091697	0020	1	1	1
Fuel duplex filter	20	HOSE ASSEMBLY	DZ12317431	N/A	N/A	1	1	1
Fuel duplex filter	20	SEALING RING	DZ01118688	05091481	0017	1	1	4
Fuel duplex filter	20	SEALING RING	DZ01262538	05090635	0030	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01151323	05090635	0037	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01177282	05090635	0040	1	1	1
Fuel duplex filter	20	PIPE/LINE/LEAD	DZ12212137	05091695	0019	1	1	1
High-pressure pipe	21	SEALING RING	DZ12154562	05091974	0019	6	6	12
High-pressure pipe	21	O-SEAL	DZ12156263	05091974	0020	6	6	8
High-pressure pipe	21	O-SEAL	DZ01181328	05091974	0030	12	16	24
High-pressure pipe	21	FUEL LINE	DZ12189821	05094081	0001	1	1	1
High-pressure pipe	21	FUEL LINE	DZ12189822	05094081	0002	1	0	0
High-pressure pipe	21	FUEL LINE	DZ12189823	05094081	0003	1	1	1
High-pressure pipe	21	FUEL LINE	DZ12189824	05094081	0004	1	0	0
High-pressure pipe	21	FUEL LINE	DZ12189825	05094081	0005	1	1	1
High-pressure pipe	21	FUEL LINE	DZ12189826	05094081	0006	1	1	1

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
High-pressure pipe	21	FUEL LINE	DZ12189834	05091974		0	1	1
High-pressure pipe	21	FUEL LINE	DZ12189835	05091974		0	1	1
High-pressure pipe	21	FUEL LINE	DZ12189836	05091974		0	0	1
High-pressure pipe	21	FUEL LINE	DZ12189837	05091974		0	0	1
High-pressure pipe	21	FUEL LINE	DZ12189838	05091974		0	1	1
High-pressure pipe	21	FUEL LINE	DZ12189839	05091974		0	1	1
High-pressure pipe	21	FUEL LINE	DZ12189840	05091974		0	0	1
High-pressure pipe	21	FUEL LINE	DZ12189841	05091974		0	0	1
High-pressure pipe	21	HOSE	DZ01154279	05094081	0021	1 m	1 m	1 m
Intake manifold	22	WET AIR CLEANER	DZ03375061	05038961	0001	1	1	2
Intake manifold	22	GASKET	DZ12163453	05090645	0002	6	8	12
Intake manifold	22	O-SEAL	DZ01173923	05091634	0009	1	1	2
Starting system	32	SEALING RING	DZ01118688	05091481	0017	1	1	8
Starting system	32	SEALING RING	DZ01118707	05094282	0011	1	1	2
Starting system	32	GASKET	DZ12161829	N/A	N/A	1	1	1
Starting system	32	SEALING RING	DZ01118688	05091481	0017	1	1	6
Starting system	32	LUBRICANT	DZ01005148	N/A	N/A	1	1	1
Heat exchanger	36	GASKET SET	DZ12163071	05094461	0006	0	1	1
Cooling water system	38	GASKET	DZ01154018	05094665	0004	1	1	1
Cooling water system	38	SEALING RING	DZ01118688	05091481	0017	1	1	1
Cooling water system	38	O-SEAL	DZ01171113	05094537	0013	1	1	1
Cooling water system	38	SEALING RING	DZ01222800	05094364	0002	1	1	1
Cooling water system	38	SEALING RING	DZ01222788	05094665	0019	1	1	1
Cooling water system	38	O-SEAL	DZ01161282	05094665	0013	1	1	1
Cooling water system	38	O-SEAL	DZ01153835	05094202	0013	2	0	0
Cooling water system	38	GASKET	DZ12161786	05094202	0021	3	0	0
Cooling water system	38	GASKET	DZ04046085	05094202	0025	1	0	0
Cooling water system	38	CLIP	DZ12151670	05094202	0027	2	0	0
Exhaust manifold	41	ROUND FLANG.GASKET	DZ12161787	05091955	0002	2	2	2
Exhaust manifold	41	SHAPED PACKING	DZ12307263	05095632	0013	0	0	4
Exhaust manifold	41	PACKING COMPOUND	DZ01009887	05094177	0006	1	1	1
Monitoring	48	SEALING RING	DZ01222791	05091339	0003	2	2	2
Monitoring	48	SEALING RING	DZ01157864	05092313	0019	2	2	2

ID = Inspection dependable

**13. Maintenance parts E70**

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Crankcase	01	GASKET	DZ12161810	05090593	0003	1	1	1
Crankcase	01	ROT SHAFT LIP SEAL	DZ12152280	05090593	0002	1	1	1
Crankcase	01	SEALING RING	DZ12152276	05091481	0002	1	1	1
Crankcase	01	GASKET	DZ12161804	05091481	0004	1	1	1
Crankcase	01	SEALING RING	DZ01118688	05091481	0017	1	1	1
Crankcase	01	O-SEAL	DZ01153947	05091481	0019	1	1	1
Crankcase	01	CYLINDER LINER	DZ12163113	05091286	0002	6	8	12
Crankcase	01	SEALING RING	DZ01118664	05091576	0011	3	1	1
Crankcase	01	O-SEAL	DZ01181881	05091576	0017	12	16	24
Crankcase	01	SEALING RING	DZ01118681	05091576	0019	1	1	1
Crankcase	01	BEARING BUSH	DZ12190961	05091576	0028	2	2	2
Crankcase	01	BEARING BUSH	DZ12200055	05091576	0029	2	3	5
Crankcase	01	SEALING RING	DZ01118688	05091481	0017	1	1	1
Crankcase	01	O-SEAL	DZ01153858	05091576	0037	24	32	48
Crankcase	01	O-SEAL	DZ01153866	05091576	0038	24	32	48
Crankcase	01	O-SEAL	DZ01153881	05091576	0059	1	1	1
Crankcase	01	O-SEAL	DZ01166002	05091576	0060	12	16	24
Crankcase	01	MAIN BEARING	DZ12163259	05091576	0070	4	5	7
Crankcase	01	HALF-RING	DZ12163177	05091576	0071	2	2	2
Crankcase	01	HALF-RING	DZ12163178	05091576	0072	2	2	2
Crankcase	01	HALF-RING (OVERSIZE)	DZ12200054	N/A	N/A	ID	ID	ID
Crankcase	01	TUBING CONNECTION	DZ12163474	05091588	0005	2	2	2
Crankcase	01	TUBING CONNECTION	DZ12163475	05091588	0006	2	2	2
Crankcase	01	HOSE CLIP	DZ01177986	05091588	0007	4	4	8
Crankcase	01	SEALING RING	DZ01118760	05091588	0009	2	2	2
Crankcase	01	O-SEAL	DZ01172891	N/A	N/A	1	1	1
Crankcase	01	O-SEAL	DZ01161340	05090670	0004	1	1	1
Crankcase	01	O-SEAL	DZ06214824	05090670	0005	1	1	1
Crankcase	01	O-SEAL	DZ01166130	05090676	0002	1	1	1
Crankcase	01	SLEEVE	DZ12161000	05091576	0012	12	16	24
Crankcase	01	SLEEVE	DZ12163165	05091576	0013	12	16	24
Crankcase	01	O-SEAL	DZ01153813	05091576	0017	8	16	24
Crankcase	01	HEXAGON BOLT	DZ01153796	05091576	0025	16	22	28
Crankcase	01	GASKET	DZ12161809	05091576	0048	1	1	1
Crankcase	01	PLAIN WASHER	DZ12163186	05091576	0064	12	16	24
Crankcase	01	PLAIN WASHER	DZ12163187	05091576	0065	12	16	24
Crankcase	01	SLEEVE	DZ12163166	05091576	0066	12	16	24
Crankcase	01	SLEEVE	DZ12163167	05091576	0067	6	8	12
Crankcase	01	OIL SEPARATOR	DZ04009666	05090670	0002	1	1	1

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Crankcase	01	O-SEAL	DZ01153828	05090670	0004	1	1	1
Crankcase	01	BEARING BUSH	DZ12161300	05091286	0014	1	0	0
Crankcase	01	BEARING BUSH	DZ12161301	05091286	0015	1	0	0
Crankcase	01	O-SEAL	DZ06214817	05091586	0004	1	1	1
Oil pan	02	SEALING RING	DZ01118718	05094282	0003	2	2	2
Oil pan	02	O-SEAL	DZ01166062	05094282	0005	2	2	2
Oil pan	02	O-SEAL	DZ06214722	05094282	0009	1	1	1
Oil pan	02	SEALING RING	DZ01118707	05094282	0011	1	1	1
Oil pan	02	O-SEAL	DZ01166157	05094282	0024	1	1	1
Oil pan	02	O-SEAL	DZ01153887	05094282	0025	2	2	2
Oil pan	02	SEALING RING	DZ01118737	05094282	0032	3	3	3
Oil pan	02	GASKET	DZ12161807	05094282	0043	0	0	2
Oil pan	02	GASKET	DZ12161825	05094282	0044	0	0	2
Oil pan	02	SHAPED PACKING	DZ12161813	05094282	0028	0	0	1
Oil pan	02	O-SEAL	DZ01153828	05094386	0008	1	2	2
Oil pan	02	O-SEAL	DZ01160615	05094386	0010	1	1	1
Oil pan	02	O-SEAL	DZ01180099	05094386	0014	1	1	1
Oil pan	02	SHAPED PACKING	DZ12161812	05094393	0016	0	1	0
Oil pan	02	SHAPED PACKING	DZ12161814	05094386	0025	1	0	0
Vibration damper	05	TORSIONAL VIBRATION DAMPER	DZ12163377	05091600	0001	1	1	2
Vibration damper	05	CHEESE HEAD SCREW	DZ01152867	05091600	0003	0	0	12
Vibration damper	05	CHEESE HEAD SCREW	DZ01110785	05091607	0003	12	12	0
Connecting rod	06	BIG END BOLT	DZ12161131	05090600	0002	12	16	24
Connecting rod	06	SMALL END BUSH	DZ12163261	05090600	0003	6	8	12
Connecting rod	06	BIG END BEARING	DZ12163260	05090600	0005	6	8	12
Connecting rod	06	CONNECTING ROD	DZ15073277	05090600	0001	ID	ID	ID
Connecting rod	06	STRAIGHT PIN	DZ01115420	05090600	0004	6	8	12
Piston	07	PISTON COMPLETE	DZ12163132	05090599	0001	ID	ID	ID
Piston	07	OIL CONTROL RING	DZ12152432	N/A	N/A	6	8	12
Piston	07	TAPER-FACED RING	DZ01153296	N/A	N/A	6	8	12
Piston	07	KEYSTONE RING	DZ12152406	N/A	N/A	6	8	12
Piston	07	PISTON PIN	DZ01154079	N/A	N/A	ID	ID	ID
Piston	07	CIRCLIP	DZ01107836	N/A	N/A	12	16	24
Cylinder head	08	GASKET	DZ12163455	05090640	0002	6	8	12
Cylinder head	08	CYLINDER HEAD	DZ12190017	N/A	N/A	ID	ID	ID
Cylinder head	08	VALVE SEAT INSERT	DZ12189276	05091565	0007	6	8	12
Cylinder head	08	VALVE SEAT INSERT	DZ12190018	05091565	0008	6	8	12
Cylinder head	08	O-SEAL	DZ01153859	05091565	0010	6	8	12
Cylinder head	08	O-SEAL	DZ01153872	05091565	0011	6	8	12
Cylinder head	08	SEALING RING	DZ12163467	05091565	0024	6	8	12
Cylinder head	08	HEXAGON BOLT	DZ12163212	N/A	N/A	ID	ID	ID

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Cylinder head	08	VALVE GUIDE	DZ12163176	05094078	0009	12	16	24
Cylinder head	08	VALVE ROTATOR	DZ12151491	05094078	0018	12	16	24
Cylinder head	08	INLET VALVE	DZ12163267	05094078	0016	6	8	12
Cylinder head	08	EXHAUST VALVE	DZ12163266	05094078	0017	6	8	12
Cylinder head	08	SHAPED PACKING	DZ12275412	05094078	0023	6	8	12
Cylinder head	08	SEALING RING	DZ0118654	05090640	0004	6	8	12
Cylinder head	08	CYLINDER HEAD GASKET SET	DZ12163879	05092287	0001	6	8	12
Cylinder head	08	SLEEVE	DZ12279645	05094545	0002	ID	ID	ID
Cylinder head	08	RING	DZ12163183	05094545	0012	ID	ID	ID
Camshaft	10	O-SEAL	DZ01153897	05094011	0002	1	1	1
Camshaft	10	O-SEAL	DZ01153855	05094164	0009	1	1	1
Camshaft	10	CAMSHAFT	DZ12163137	05091452	0001	ID	0	0
Camshaft	10	CAMSHAFT	DZ12311339			0	ID	0
Camshaft	10	CAMSHAFT	DZ12163139	N/A	N/A	0	0	ID
Camshaft	10	BEARING BUSH	DZ12190961	05091459	0009	2	2	2
Camshaft	10	BEARING BUSH	DZ12200055	05091459	0010	2	3	5
Camshaft	10	O-SEAL	DZ01153870	05090646	0011	2	2	1
Camshaft	10	O-SEAL	DZ01161088	05091284	0004	1	1	1
Valve drive	11	PROTECTING TUBE	DZ12163753	05090596	0007	ID	ID	ID
Lubricating oil pump	14	GEARED PUMP	DZ12163387	05091479	0001	1	0	0
Lubricating oil pump	14	GEARED PUMP	DZ15076658	05090646	0001	0	1	0
Lubricating oil pump	14	GEARED PUMP	DZ12190099	05094278	0001	0	0	1
Lubricating oil pump	14	O-SEAL	DZ01170540	05091479	0002	1	0	0
Lubricating oil pump	14	O-SEAL	DZ01153870	05090646	0011	0	1	1
Lubricating oil system	15	RADIATOR CORE	DZ12163745	05091546	0002	0	0	ID
Lubricating oil system	15	RADIATOR CORE	DZ12163741	05091544	0002	0	ID	0
Lubricating oil system	15	RADIATOR CORE	DZ12911269	05091548	0002	ID	0	0
Lubricating oil system	15	GASKET	DZ12163451	05091548	0005	1	0	0
Lubricating oil system	15	GASKET	DZ12163452	05091546	0005	0	1	1
Lubricating oil system	15	GASKET	DZ12163449	05091546	0006	2	2	2
Lubricating oil system	15	O-SEAL	DZ01173375	05091548	0010	2	2	0
Lubricating oil system	15	O-SEAL	DZ01160620	05091546	0007	0	0	2
Lubricating oil system	15	O-SEAL	DZ01153870	05090646	0011	2	2	2
Lubricating oil system	15	FILTER CARTRIDGE	DZ12153235	05094214	0002	2	2	2
Lubricating oil system	15	O-RING	DZ12189261	05094214	0003	2	2	2
Lubricating oil system	15	O-SEAL	DZ01153916	05094214	0004	6	6	6
Lubricating oil system	15	SEALING RING	DZ01118718	05094282	0003	2	2	2
Lubricating oil system	15	SEALING RING	DZ01118791	05094214	0018	1	1	1
Lubricating oil system	15	GASKET	DZ12154662	05094214	0019	1	1	1
Lubricating oil system	15	O-RING	DZ12154852	05094214	0020	1	1	1
Lubricating oil system	15	SPRING	DZ12155169	05094214	0014	1	1	1

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Lubricating oil system	15	BALL	DZ01151214	05094214	0015	1	1	1
Lubricating oil line	16	HOSE	DZ12190194	05091977	0005	2	2	2
Lubricating oil line	16	O-SEAL	DZ01160514	05094315	0002	1	2	2
Lubricating oil line	16	O-SEAL	DZ01153921	05094315	0018	1	1	1
Parts injection pump	17	SEALING RING	DZ01118664	05091576	0011	3	1	2
Parts injection pump	17	HOSE ASSEMBLY	DZ12317423	N/A	N/A	1	1	1
Parts injection pump	17	SEALING RING	DZ01118681	05091576	0019	1	4	4
Parts injection pump	17	SEALING RING	DZ01118693	05090672	0015	10	13	13
Parts injection pump	17	SUPPLY PUMP	DZ01176336	N/A	N/A	0	0	1
Parts injection pump	17	HOSE ASSEMBLY	DZ15083857	N/A	0026	1	1	1
Parts injection pump	17	SEALING RING	DZ01118688	05091481	0017	1	1	4
Parts injection pump	17	CLUTCH DISC	DZ12155638	N/A	N/A	6	6	6
Parts injection pump	17	SEALING RING	DZ01308415	05094555	0014	6	8	12
Parts injection pump	17	PUMPING ELEMENT	DZ12155928	05094555	0007	6	8	12
Parts injection pump	17	SNAP RING	DZ01321045	N/A	N/A	6	8	12
Parts injection pump	17	SEALING RING	DZ01288052	05094555	0018	12	16	24
Parts injection pump	17	O-SEAL	DZ01309632	05094555	0019	6	8	12
Parts injection pump	17	GUIDE BUSH	DZ01310054	N/A	N/A	2	2	2
Parts injection pump	17	THREADED RING	DZ12067214	N/A	N/A	1	1	1
Parts injection pump	17	BUSH	DZ12154354	N/A	N/A	6	8	12
Parts injection pump	17	RING	DZ01310076	N/A	N/A	1	1	1
Parts injection pump	17	TAP.ROLLER BEARING	DZ01130641	05094555	0059	1	1	1
Parts injection pump	17	CAMSHAFT	DZ12157297	N/A	N/A	0	0	ID
Parts injection pump	17	BEARING/SUPPORT	DZ01300236	05094555	0074	1	1	2
Parts injection pump	17	GASKET	DZ12037952	05094555	0081	1	1	1
Parts injection pump	17	BALANCING PLATE	DZ01310096	N/A	N/A	1	1	1
Parts injection pump	17	O-SEAL	DZ01320427	05094555	0083	1	1	1
Parts injection pump	17	SEALING RING	DZ01309833	N/A	N/A	1	1	1
Parts injection pump	17	SEALING PLATE	DZ01320780	05094079	0003	1	1	2
Parts injection pump	17	SEALING RING	DZ01118659	05090635	0014	2	5	12
Parts injection pump	17	SEALING RING	DZ01118693	05090672	0015	10	13	13
Parts injection pump	17	SEALING RING	DZ01118669	N/A	N/A	2	2	2
Parts injection pump	17	SEALING PLATE	DZ01318176	N/A	N/A	1	1	1
Parts injection pump	17	BALL BEARING	DZ01109024	05094760	0011	1	1	1
Parts injection pump	17	ANGUL BALL BEARING	DZ12036801	05094760	0013	1	1	1
Parts injection pump	17	CIRCLIP	DZ01107834	N/A	N/A	1	1	1
Parts injection pump	17	ANGUL BALL BEARING	DZ01109215	05094760	0026	1	1	1
Parts injection pump	17	SEALING RING	DZ01118673	05094760	0041	2	2	2
Parts injection pump	17	ANGUL BALL BEARING	DZ01318958	N/A	N/A	1	1	1
Parts injection pump	17	RUBBER STOP	DZ01288453	N/A	N/A	4	4	4
Parts injection pump	17	SEALING RING	DZ01118647	05090635	0037	2	2	2

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Parts injection pump	17	SEALING RING	DZ01118659	05090635	0014	2	5	4
Parts injection pump	17	GUIDE BUSH	DZ01308486	N/A	N/A	2	2	2
Parts injection pump	17	SEALING RING	DZ01289778	05094760	0074	2	2	2
Parts injection pump	17	SEALING RING	DZ01288545	05094760	0100	1	1	1
Parts injection pump	17	SEALING RING	DZ01118748	05094555	0089	1	1	1
Parts injection pump	17	GASKET	DZ01318960	05094760	0117	1	1	1
Parts injection pump	17	SEALING RING	DZ01299059	05094760	0135	1	1	1
Parts injection pump	17	SEALING RING	DZ01304346	05029111	0007	1	1	1
Parts injection pump	17	SEALING RING	DZ01287773	05029111	0008	4	4	4
Parts injection pump	17	SEALING RING	DZ01290550	05029111	0009	1	1	1
Parts injection pump	17	HOSE ASSEMBLY	DZ15083771	05091422	0006	1	0	0
Parts injection pump	17	CLUTCH/COUPLING	DZ12151447	05091469	0001	1	1	0
Parts injection pump	17	CLUTCH/COUPLING	DZ12151448	05091469	0002	1	1	0
Parts injection pump	17	HEXAGON BOLT	DZ01148137	05091469	0004	4	4	0
Parts injection pump	17	HEXAGON NUT	DZ01136457	05091469	0005	2	2	0
Parts injection pump	17	FUEL INJECTION PUMP	DZ12190138	05094079	0001	ID	0	0
Parts injection pump	17	FUEL SUPPLY PUMP	DZ01319125	05094079	0002	1	1	0
Parts injection pump	17	SEALING WASHER	DZ01308652	05094555	0012	6	8	12
Parts injection pump	17	PRESSRE CONTROLE VALVE	DZ01308653	05094555	0013	6	8	0
Parts injection pump	17	ROLLER TAPPET	DZ01318647	05094555	0047	6	8	0
Parts injection pump	17	SEALING RING	DZ01309939	05094555	0086	1	0	0
Parts injection pump	17	SEALING RING	DZ01151323	05094760	0060	2	0	0
Parts injection pump	17	SUPPLY PUMP	DZ01263109			0	1	0
Parts injection pump	17	BUSH	DZ01310478			0	1	0
Parts injection pump	17	DELIVERY VALVE HOLDER	DZ01309473			0	8	0
Parts injection pump	17	COMPRESSION SPRING	DZ01308651			0	8	0
Parts injection pump	17	SEALING RING	DZ12154602			0	8	0
Parts injection pump	17	CONTROL ROD	DZ01306015			0	1	0
Parts injection pump	17	CUPPED WASHER	DZ01310090			0	8	0
Parts injection pump	17	HELICAL SPRING	DZ01309474			0	8	0
Parts injection pump	17	SPRING CAP	DZ01309475			0	8	0
Parts injection pump	17	PRESSURE OIL LINE	DZ03470293			0	1	0
Parts injection pump	17	CAMSHAFT	DZ01318795			0	ID	0
Parts injection pump	17	SEALING FRAME	DZ01310516			0	1	0
Parts injection pump	17	SEALING PLATE	DZ01288111			0	2	0
Injection pump drive	18	BALL BEARING	DZ01108988	05091468	0004	1	1	1
Injection pump drive	18	BALL BEARING	DZ01109050	05091468	0005	1	1	1
Injection pump drive	18	ROTATION SHAFT LIP SEAL	DZ01154481	05091468	0007	1	1	1
Injection pump drive	18	O-SEAL	DZ06214834	05091468	0012	1	1	1
Injection pump drive	18	CIRCLIP	DZ01107858	05091468	0006	1	1	1
Injection pump drive	18	SHAFT	DZ12163152	05091468	0003	1	1	1



Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Fuel injector	19	NOZZLE HOLDER	DZ12153055	N/A	N/A	ID	ID	ID
Fuel injector	19	SEALING RING	DZ12163466	05091476	0005	6	8	12
Fuel injector	19	O-SEAL	DZ01212509	05091476	0006	6	8	12
Fuel injector	19	SEALING RING	DZ01118641	05091476	15	12	16	24
Fuel injector	19	NOZZLE	DZ12152963	05091476	0011	6	8	12
Fuel duplex filter	20	SEALING RING	DZ01118713	05090635	0004	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118641	05090666	0003	6	8	12
Fuel duplex filter	20	SEALING RING	DZ01118688	05091481	0017	1	1	1
Fuel duplex filter	20	SEALING RING	DZ12154530	05090635	0010	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118659	05090635	0014	2	5	4
Fuel duplex filter	20	O-RING	DZ12156209	05090635	0018	1	1	1
Fuel duplex filter	20	CIRCLIP	DZ01107818	N/A	N/A	1	1	1
Fuel duplex filter	20	O-RING	DZ12156210	05090635	0020	1	1	1
Fuel duplex filter	20	FILTER ELEMENT	DZ01175893	05090635	0025	2	2	2
Fuel duplex filter	20	HEXAGON BOLT	DZ01112538	N/A	N/A	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118647	05090635	0037	2	2	2
Fuel duplex filter	20	SEALING RING	DZ12154675	05090635	0040	1	1	1
Fuel duplex filter	20	SEALING RING	DZ01118718	05094282	0003	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01118688	05091481	0017	1	1	4
Fuel duplex filter	20	HOSE ASSEMBLY	DZ15084061	05091697	0019	1	1	1
Fuel duplex filter	20	PIPE/LINE/LEAD	DZ12911618	05091697	0020	1	1	1
Fuel duplex filter	20	HOSE ASSEMBLY	DZ12317431	N/A	N/A	1	1	1
Fuel duplex filter	20	SEALING RING	DZ01118688	05091481	0017	1	1	4
Fuel duplex filter	20	SEALING RING	DZ01262538	05090635	0030	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01151323	05090635	0037	2	2	2
Fuel duplex filter	20	SEALING RING	DZ01177282	05090635	0040	1	1	1
Fuel duplex filter	20	PIPE/LINE/LEAD	DZ12212137	05091695	0019	1	1	1
High-pressure pipe	21	SEALING RING	DZ12154562	05091974	0019	6	6	12
High-pressure pipe	21	O-SEAL	DZ12156263	05091974	0020	6	6	8
High-pressure pipe	21	O-SEAL	DZ01181328	05091974	0030	12	16	24
High-pressure pipe	21	FUEL LINE	DZ12189821	05094081	0001	1	1	1
High-pressure pipe	21	FUEL LINE	DZ12189822	05094081	0002	1	0	0
High-pressure pipe	21	FUEL LINE	DZ12189823	05094081	0003	1	1	1
High-pressure pipe	21	FUEL LINE	DZ12189824	05094081	0004	1	0	0
High-pressure pipe	21	FUEL LINE	DZ12189825	05094081	0005	1	1	1
High-pressure pipe	21	FUEL LINE	DZ12189826	05094081	0006	1	1	1
High-pressure pipe	21	FUEL LINE	DZ12189834	05091974		0	1	1
High-pressure pipe	21	FUEL LINE	DZ12189835	05091974		0	1	1
High-pressure pipe	21	FUEL LINE	DZ12189836	05091974		0	0	1
High-pressure pipe	21	FUEL LINE	DZ12189837	05091974		0	0	1
High-pressure pipe	21	FUEL LINE	DZ12189838	05091974		0	1	1

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
High-pressure pipe	21	FUEL LINE	DZ12189839	05091974		0	1	1
High-pressure pipe	21	FUEL LINE	DZ12189840	05091974		0	0	1
High-pressure pipe	21	FUEL LINE	DZ12189841	05091974		0	0	1
High-pressure pipe	21	HOSE	DZ01154279	05094081	0021	1 m	1 m	1 m
Intake manifold	22	WET AIR CLEANER	DZ03375061	05038961	0001	1	1	2
Intake manifold	22	GASKET	DZ12163453	05090645	0002	6	8	12
Intake manifold	22	TUBING CONNECTION	DZ12163471	05091639	0007	0	0	2
Intake manifold	22	TUBING CONNECTION	DZ12140240	05091634	0005	1	1	0
Intake manifold	22	HOSE CLIP	DZ01174171	05091639	0008	0	0	4
Intake manifold	22	HOSE CLIP	DZ00173983	05091634	0006	2	2	0
Intake manifold	22	O-SEAL	DZ01173923	05091634	0009	1	1	2
Starting system	32	SEALING RING	DZ01118688	05091481	0017	1	1	8
Starting system	32	SEALING RING	DZ01118707	05094282	0011	1	1	2
Starting system	32	GASKET	DZ12161829	N/A	N/A	1	1	1
Starting system	32	SEALING RING	DZ01118688	05091481	0017	1	1	6
Starting system	32	LUBRICANT	DZ01005148	N/A	N/A	1	1	1
Heat exchanger	36	FLAT GASKET	DZ12279983	05094461	0010	0	1	1
Heat exchanger	36	FLAT GASKET	DZ12161783	05094534	0024	1	0	0
Heat exchanger	36	O-SEAL	DZ01162036	05094461	0012	1	1	1
Heat exchanger	36	GASKET	DZ12030539	05094461	0023	0	1	1
Heat exchanger	36	SEALING RING	DZ01118852	05094461	0027	0	2	2
Heat exchanger	36	SEALING RING	DZ01118688	05094534	0028	2	0	0
Heat exchanger	36	SEALING RING	DZ01124011	05094461	0032	0	2	2
Heat exchanger	36	SEALING RING	DZ01118737	05094534	0018	2	0	0
Heat exchanger	36	O-SEAL	DZ01153849	05094534	0025	1	0	0
Heat exchanger	36	O-SEAL	DZ01153950	05094534	0029	2	0	0
Heat exchanger	36	O-SEAL	DZ01171417	05094534	0006	4	0	0
Heat exchanger	36	GASKET SET	DZ12163071	05094461	0006	0	1	1
Pump assembly	37	CENTRIFUGAL PUMP	DZ12152687	05091970	0001	0	0	ID
Pump assembly	37	CENTRIFUGAL PUMP	DZ12273230	05090104	0001	ID	0	0
Pump assembly	37	O-SEAL	DZ01160620	05091970	0018	5	6	6
Pump assembly	37	TUBING CONNECTION	DZ12163477	05091970	0019	2	2	2
Pump assembly	37	HOSE CLIP	DZ01173941	05091970	0020	4	4	4
Pump assembly	37	REPAIR KIT	DZ12163881	05091986	0026	1	1	1
Pump assembly	37	O-SEAL	DZ01153901	05094546	0020	1	3	0
Pump assembly	37	O-SEAL	DZ01153835	05094546	0025	0	2	0
Pump assembly	37	NARROW V-BELT	DZ01154353	05094464	0001	1	1	1
Pump assembly	37	NARROW V-BELT	DZ04147300	05094546	0018	0	1	0
Pump assembly	37	SET NARROW V-BELTS	DZ01174834	05094582	0001	0	0	1
Pump assembly	37	REPAIR KIT	DZ12160206	05090104	0002	1	0	0
Pump assembly	37	BALL BEARING	DZ01136653	05094163	0004	3	3	3

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Pump assembly	37	NARROW V-BELT	DZ04359336	05092487	0018	1	0	0
Pump assembly	37	BALL BEARING	DZ01136912	05094201	0020	1	0	0
Pump assembly	37	GASKET	DZ12270869	05094668	0006	1	0	0
Pump assembly	37	HOSE	DZ01154282	05094668	0016	1	0	0
Pump assembly	37	O-SEAL	DZ01153900	05094668	0021	1	0	0
Pump assembly	37	REPAIR KIT RAW WATER PUMP	DZ12154980	05091513	0002	0	0	1
Pump assembly	37	SEALING RING	DZ12154546	05094064	0003	1	1	0
Pump assembly	37	SHAFT	DZ12157316	05094064	0005	1	1	0
Pump assembly	37	BALL BEARING	DZ12155576	05094064	0006	1	1	0
Pump assembly	37	LOCK WASHER	DZ12156477	05094064	0007	1	1	0
Pump assembly	37	CIRCLIP	DZ01107844	05094064	0008	1	1	0
Pump assembly	37	CYL ROLLER BEARING	DZ01117023	05094064	0009	1	1	0
Pump assembly	37	SLEEVE	DZ12155395	05094064	0010	1	1	0
Pump assembly	37	GASKET	DZ12154856	05094064	0011	1	1	0
Pump assembly	37	GASKET	DZ12156402	05094064	0013	1	1	0
Pump assembly	37	PLATE	DZ12155991	05094064	0014	2	2	0
Pump assembly	37	SPACER RING	DZ12156147	05094064	0015	1	1	0
Pump assembly	37	IMPELLER	DZ12156036	05094064	0016	1	1	0
Pump assembly	37	NUT	DZ12155781	05094064	0018	1	1	0
Pump assembly	37	PLAIN WASHER	DZ12156451	05094064	0019	1	1	0
Pump assembly	37	PARALLEL KEY	DZ12155096	05094064	0020	1	1	0
Pump assembly	37	STUD	DZ12156825	05094064	0022	3	3	0
Pump assembly	37	HEXAGON NUT	DZ01114358	05094064	0023	6	6	0
Pump assembly	37	LOCKING NUT	DZ12155818	05094064	0025	1	1	0
Pump assembly	37	SEALING RING	DZ12154545	05094064	0026	1	1	0
Pump assembly	37	SPACER RING	DZ12156148	05094064	0027	1	1	0
Pump assembly	37	SEALING RING	DZ12154547	05094064	0028	1	1	0
Pump assembly	37	SCREW PLUG	DZ12156771	05094064	0029	1	1	0
Pump assembly	37	SPACER WASHER	DZ12156467	05094064	0030	1	1	0
Pump assembly	37	SNAP RING	DZ12156370	05094064	0031	1	1	0
Pump assembly	37	HEXAGON BOLT	DZ12156863	05094064	0033	3	3	0
Cooling water system	38	GASKET	DZ01154018	05094665	0004	1	1	1
Cooling water system	38	SEALING RING	DZ01118688	05091481	0017	1	1	1
Cooling water system	38	HOSE	DZ01154136	05094665	0010	1	1	1
Cooling water system	38	TUBING CONNECTION	DZ12163468	05094665	0011	2	2	2
Cooling water system	38	TUBING CONNECTION	DZ12161871	05094665	0012	0	0	1
Cooling water system	38	O-SEAL	DZ01171113	05094537	0013	1	1	1
Cooling water system	38	SEALING RING	DZ01222800	05094364	0002	1	1	1
Cooling water system	38	SEALING RING	DZ01222788	05094665	0019	1	1	1
Cooling water system	38	TEMPERATURE CONTROLLER	DZ12152748	05091988	0031	2	2	2
Cooling water system	38	TUBING CONNECTION	DZ12161873	05091988	0032	7	6	6

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Cooling water system	38	HOSE CLIP	DZ01173941	05091988	0033	16	16	16
Cooling water system	38	TUBING CONNECTION	DZ12161884	05091988	0040	2	2	2
Cooling water system	38	HOSE CLIP	DZ01138380	05091988	0041	4	4	4
Cooling water system	38	HOSE	DZ01154277	05091988	0059	1	1	1
Cooling water system	38	TUBING CONNECTION	DZ12161874	05091988	0061	1	2	2
Cooling water system	38	HOSE CLIP	DZ01133878	05094665	0003	8	8	8
Cooling water system	38	O-SEAL	DZ01161282	05094665	0013	1	1	1
Cooling water system	38	O-SEAL	DZ01153835	05094202	0013	2	0	0
Cooling water system	38	GASKET	DZ12161786	05094202	0021	3	0	0
Cooling water system	38	GASKET	DZ04046085	05094202	0025	1	0	0
Cooling water system	38	CLIP	DZ12151670	05094202	0027	2	0	0
Exhaust manifold	41	ROUND FLANG.GASKET	DZ12161787	05091955	0002	2	2	2
Exhaust manifold	41	STUD	DZ01153356	05091955	0003	12	12	12
Exhaust manifold	41	HEXAGON NUT	DZ01321459	05091955	0004	12	12	12
Exhaust manifold	41	PLAIN WASHER	DZ12167216	05091955	0005	12	12	12
Exhaust manifold	41	STUD	DZ01157287	05095632	0002	0	0	6
Exhaust manifold	41	STUD	DZ01153356	05091669	0018	10	16	0
Exhaust manifold	41	CHEESE HEAD SCREW	DZ01139985	05095632	0005	16	20	24
Exhaust manifold	41	COMPENSATOR	DZ12270182	05095632	0009	0	0	ID
Exhaust manifold	41	SHAPED PACKING	DZ12307263	05095632	0013	0	0	4
Exhaust manifold	41	HEXAGON NUT	DZ01321455	05095632	0014	0	0	12
Exhaust manifold	41	HEXAGON NUT	DZ01321459	05095632	0017	10	16	20
Exhaust manifold	41	PLAIN WASHER	DZ12163194	05091669	0003	8	12	8
Exhaust manifold	41	PLAIN WASHER	DZ12200095	05091669	0004	4	4	0
Exhaust manifold	41	ADAPTER	DZ12187760	05091669	0008	2	2	0
Exhaust manifold	41	CLIP	DZ12187759	05091669	0009	4	4	0
Exhaust manifold	41	PACKING COMPOUND	DZ01009887	05094177	0006	1	1	1
Turbocharger	43	STRAP	DZ01301466	05090653	0007	1	1	2
Turbocharger	43	O-SEAL	DZ01153871	05090669	0004	1	2	2
Turbocharger	43	GASKET	DZ12275220	05090669	0007	1	2	2
Turbocharger	43	GASKET	DZ12161797	05090669	0019	1	2	2
Turbocharger	43	HOSE	DZ12188858	05090669	0024	1	1	2
Turbocharger	43	HOSE CLIP	DZ12151677	05090669	0025	2	2	4
Turbocharger	43	HOSE	DZ12188857	05090669	0026	2	2	4
Turbocharger	43	HOSE CLIP	DZ12151678	05090669	0027	4	4	8
Turbocharger	43	FLANGE GASKET	DZ12210075	05094083	0030	2	2	2
Turbocharger	43	GASKET	DZ12163441	05090669	0035	2	2	2
Turbocharger	43	SCREW PLUG	DZ01100940	05090645	0008	4	4	4
Turbocharger	43	SEALING RING	DZ01118688	05091481	0017	1	1	1
Turbocharger	43	GASKET	DZ01154019	05091988	0029	2	4	4
Turbocharger	43	FLANGE GASKET	DZ12140186	05090669	0047	4	4	4

Construction group	CG	Description	Material no	ETL (indicative)	Pos (indicative)	V6	V8	V12
Turbocharger	43	HOSE	DZ01154144	05090669	0049	1	1	1
Turbocharger	43	CLIP	DZ12151619	05090669	0050	3	3	3
Turbocharger	43	SEALING RING	DZ01118681	05091576	0019	1	4	4
Turbocharger	43	TURBOCHARGER	DZ12152919	05090651	0001	0	0	ID
Turbocharger	43	TURBOCHARGER	DZ12152923	05090653	0001	ID	0	0
Turbocharger	43	TURBOCHARGER	DZ12190373	05094436	0001	0	ID	0
Turbocharger	43	HEXAGON BOLT	DZ01112416	05090669	0008	4	4	4
Turbocharger	43	SPRING LOCK WASHER	DZ01178365	05090669	0009	8	8	8
Turbocharger	43	TUBING CONNECTION	DZ12161887	05090669	0010	2	2	2
Turbocharger	43	CHEESE HEAD SCREW	DZ01110652	05090669	0020	4	4	4
Turbocharger	43	GASKET	DZ12163442	05090669	0030	2	2	2
Turbocharger	43	SPRING WASHER	DZ01107284	05090669	0043	24	24	24
Turbocharger	43	HEXAGON NUT	DZ01139401	05090669	0044	24	24	24
Turbocharger	43	PLAIN WASHER	DZ01152752	05090669	0046	24	24	24
Turbocharger	43	HEXAGON BOLT	DZ01112445	05090669	0059	8	8	8
Turbocharger	43	STUD	DZ01113472	05090669	0069	2	2	2
Turbocharger	43	REPAIR KIT	DZ01318706	05090653	0950	1	0	2
Turbocharger	43	REPAIR KIT	DZ12156394	05090651	0950	0	1	0
Turbocharger	43	SET OF PARTS	DZ01319481	05090653	0953	1	1	2
Turbocharger	43	HOSE CLIP	DZ01173962	05094083	0018	2	18	0
Turbocharger	43	HOSE CLIP	DZ01170560	05094083	0048	3	3	3
Turbocharger	43	CORE ASSEMBLY	DZ12188919	05090653	0002	ID	ID	ID
Turbocharger	43	O-RING	DZ04006886	05090653	0003	1	1	2
Turbocharger	43	HEXAGON BOLT	DZ12188067	05090653	0005	8	8	16
Monitoring	48	SEALING RING	DZ01222791	05091339	0003	2	2	2
Monitoring	48	SEALING RING	DZ01157864	05092313	0019	2	2	2
Flywheel housing	52	O-SEAL	DZ01153923	05090647	0008	1	1	1
Charge air cooler	58	GASKET	DZ12154894	05090674	0005	0	0	2
Charge air cooler	58	GASKET	DZ12154895	05094171	0003	2	2	0
Optional extras	90	GASKET SET (SHORTBLOCK	DZ12163075	05092278	0001	1	0	0
Optional extras	90	GASKET SET (SHORTBLOCK	DZ12163076	05092280	0001	0	1	0
Optional extras	90	GASKET SET (SHORTBLOCK	DZ12163077	05092287	0001	0	0	1

ID = Inspection dependable